

PRONOV, A.P.

25(1); 18(5)

PHASE I BOOK EXPLOITATION

SOV/2859

Akademiya nauk SSSR. Institut metallurgii

Goryachiye treshchiny v svarnykh soyedineniyakh slitskakh i otlivkakh (Hot Cracks in Welds, Ingots, and Castings) Moscow, Izd-vo AN SSSR, 1959. 163 p. 2,700 copies printed.

Ed.: N. N. Rykalin, Corresponding Member, USSR Academy of Sciences; Ed. of Publishing House: V. S. Rzhiznikov; Tech. Ed.: Yu. V. Rykina.

PURPOSE: This book is intended for metallurgists and welding engineers.

COVERAGE: This is a collection of scientific papers dealing with the formation of hot cracks in ingots, castings, and welded products. Some papers are concerned mainly with the nature or mechanism of the phenomenon; others examine the effect of factors such as steelmaking procedure. Sufficient evidence is presented to identify some of the causes of hot cracks. Various means of investigating and preventing the phenomenon are described. A number of references, both Soviet and non-Soviet, accompany the papers. For further coverage see the Table of Contents.

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Hot Cracks in Welds (Cont.)

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TABLE OF CONTENTS:

Dobrokhotov, N. N. Effect of Steelmaking Technique on Quality of Open-hearth Steel

The author makes the following recommendations: At the end of the run the basicity of the slag, i.e., the ratio of CaO to SiO_2 , should be within the limits of 2.5 and 3.0, and the fluidity of the slag, as tested by viscosimeter, should amount to some 30-60 mm. Preliminary deoxidation of the steel in the furnace by means of blast-furnace ferrosilicon should not be carried out. If ferrochrome and ferromanganese have been added, the time for holding the heat should be determined by the formula $z = \frac{1.5q}{P}$, min., where q = the weight of ferroalloys added (in kg), and P = the output of the furnace (t/24 hr). In the production of carbon and low-alloy steel, alloying and deoxidation should be carried out in the teeming ladle. Government standards (GOST 380-50 and 5521-50) for rimmed steel should be revised so as to specify a manganese content of 0.30-0.50 percent instead of the present 0.35-0.60 percent.

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Yefimov, V. A. Causes of Cracks in Steel Ingots and Means of Preventing Them 10

The following causes of ingot cracks are discussed: shrinkage and plasticity of steel at high temperatures, crystallization conditions in the ingot mold, ingot-mold design and teeming conditions, hydrodynamics of ingot-mold filling, and sticking of the ingot to the mold and other factors associated with top pouring.

Pronov, A. P. Mechanism of Hot-crack Formation on Steel Ingot Surfaces 30

Bidulya, P. N., V. G. Gruzin, and V. N. Saveyko. Formation and Prevention of Hot Cracks in Steel Castings 39

As a criterion for the quantitative determination of the resistance of steel to the formation of exterior hot cracks, the author finds it convenient to employ the concept of "crack resistance", or the force required to form a crack during the shrinkage of a standard cast specimen with rigidly fastened ends. For mild carbon steel and low-alloy (Cr, Mo, V) structural steel, pouring temperature is one of

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the most important factors in crack development. Filling the molds with steel at the temperature of the liquidus or below should be avoided. A direct relationship between crack resistance and linear shrinkage, fluidity, and gas liberation was established. Increasing the fluidity of the mushy stage by changing the composition or the conditions helps to increase the crack resistance. Sulfur, hydrogen, and methane decrease the crack resistance of steel. Additions of manganese, molybdenum, and vanadium to carbon steel or low alloy steel increase the crack resistance. The manganese content should be held at a maximum so as to assure a ratio of $Mn/S \leq 13$.

Gulyayev, B. B., I. I. Lupyrev, and L. M. Postnov. Formation of Hot Cracks in Steel Castings

51

The author recommends the following measures for controlling hot cracks in steel castings: 1) decreasing the size of the casting and eliminating projections by casting in several pieces with subsequent welding of the components; 2) Equalization of the cooling rates of various parts of the casting and elimination of conjugate parts through a rational determination of the thickness of their elements; 3) increasing fillet radii; 4) rejection of X-shaped designs and conjugate walls at angles of less than 90°; 5) increasing the pliancy of molds through the use of more pliable molding media and by

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pitting the molds; 6) strengthening weak spots through the use of chills and ribbing; 7) regulating the metal composition, insofar as possible, and the pouring conditions so as to reduce the probability of crack development. Consistent application of these measures, the author states, will effectively prevent hot cracks from developing. Consistent application of these measures, the author states, will effectively prevent hot cracks from developing.

Pokhodnya, I. K. Hot (Crystallization) Cracks in the Hard Facing of High-Carbon Low-Chrome Steels

68

The author discusses the nature and mechanism of hot-crack formation and examines various factors contributing to it (chemical composition of added metal, cooling rate, etc.).

Medovar, B. I. Hot Cracks in the Welding of Chrome-Nickel Austenitic Steels

92

Prokhorov, N. N. Intergranular Strength of Metals

108

The author points out that hot cracks are one of the main causes of rejection of welded and cast products. To solve the problem he suggests intensive study of the hot strength of metals, using several different approaches: 1) investigation of deformations caused by

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welding and casting processes, accompanied by development of computational methods of determining deformations and their concentration at high temperatures; 2) study of the mechanical properties of metals during crystallization and cooling; 3) development of a single working hypothesis of intergranular strength of metals which would guide investigators and manufacturers in solving theoretical and practical problems connected with hot-crack formation (in this connection the author suggests the utility of his own hypothesis, based on a comparison of the numerical values of the deformation and plasticity of metals within a definite temperature range of brittleness); development of unified methods of testing metals for susceptibility to hot-crack formation in welding and casting; 5) development of quantitative methods of determining the effect of the shape of the product, as required by manufacturing and constructional considerations, on intergranular strength of welded and cast products; 6) systematic adoption of new scientific methods by manufacturers.

Lashko-Avakyan, S. V., and N. F. Lashko. Intergranular Crystallization Cracks in the Casting and Welding of Aluminum Alloys

131

According to the author, certain alloys ordinarily subject to the formation of crystallization cracks after welding can be

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Hot Cracks in Welds (Cont.)

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rendered resistant to such cracks by the use of an added metal (alloy) which satisfies the following conditions: (a) the weld metal must not be subject to crack formation after welding; (b) the liquidus temperature of the weld metal must not be higher than that of the parent metal; (c) the weld metal must not contain components that in penetrating the base metal along the boundaries of fused grains in the heat-affected zone would form alloys with significantly lower eutectic temperatures than that of the base metal.

Petrov, G. L. New Methods of Determining the Susceptibility of Weld Metal to Hot-Crack Formation

147

The article describes new methods developed by N. O. Okerblom and associates, Welding Department, Leningrad Polytechnic Institute. The methods make it possible to determine the effect of various welding materials and basic welding parameters on the development of hot cracks in weld metal.

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Hot Cracks in Welds (cont.)

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Resolution of the Conference on the Problem of Hot Cracks in Welds
Castings, and Ingots [Held at the Institute of Metallurgy, USSR
Academy of Sciences, June 9-11, 1955]

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AVAILABLE: Library of Congress

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1-14-59

PRONOV, A. P.

А.П.Пронов	Влияние отдельных элементов на свойства стали в процессе кристаллизации.
О.И.Игнатьев	
Л.М.Белоз	
В.С.Горюхи	Влияние условий роста на структуру мартенситной структуры.
М.Я.Дашевский	
В.П.Костяков	
Э.Н.Татар	
С.Я.Скобле	Закалка в водородной среде и ее влияние на свойства стали.
Е.А.Клизов	
В.А.Малочев	Температурные условия закалки и ее влияние на свойства стали.
Е.А.Казачен	
С.И.Скобле	Влияние на микроструктуру диффузии на стали.
Ю.П.Синица	
В.А.Леминг	
В.В.Гуляев	
А.К.Прохоров	Исследование влияния стали в закалке и ее влияние на свойства.
В.П.Левин	
В.К.Лебедев	
В.В.Гуляев	
Н.Н.Гуляев	Исследование процесса мартенситной закалки и ее влияние на свойства.
А.А.Маслов	
А.А.Новиков	
В.В.Гуляев	

report submitted for the 5th Physical Chemical Conference on Steel Production, Moscow-- 30 Jun 1959.

SOV/180-59-2-7/34

AUTHORS: Moldavskiy, O.D., and Pronov, A.P. (Moscow)

TITLE: Influence of Aluminium, Silicon and Chromium on the
Nature of the Primary Structure of Low-Carbon Steel
(Vliyaniye alyuminiya, kremniya i khroma na kharakter
pervichnoy struktury malouglerodistoy stali)

PERIODICAL: Izvestiya akademii nauk SSSR, Otdeleniye tekhnicheskikh
nauk, Metallurgiya i toplivo, 1959, Nr 2, pp 40-42 (USSR)

ABSTRACT: V.I. Danilov has given an equation (Refs 1,2) for the
probability of formation of centres of crystallization
in the solidification of a super-cooled liquid. The
authors briefly discuss this and also the views of
Semenchenko (Ref 3) and other workers in this field and
give some results of their own experiments. In these,
samples of armco-iron were melted in a 10-kg basic-lined,
high-frequency induction furnace with the addition of Al,
Si and Cr in amounts of 0.5 - 3.0 %. From each melt
micro- and macro-sections were prepared, and samples of
oxygen- and nitrogen-determinations, chemical analysis
and hot cracking and shrinkage tests were taken.
Figs 1 - 3 show microstructures of the steel (0.05% C)
with increasing contents of aluminium, silicon and
chromium, respectively, and its table shows grain sizes

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Influence of Aluminium, Silicon and Chromium on the Nature of the Primary Structure of Low-Carbon Steel

and nitrogen- and oxygen-contents for various percentages of aluminium added in the ladle and actually present in the steel. The authors show the following conclusions from their results and published material: 1) changes in the primary grain size of steel under otherwise similar conditions can be explained by a change in the liquid/growing-crystal surface tension; 2) the change in the primary grain of low-carbon steel on addition of aluminium of up to 0.15% is associated with the formation of high melting-point alumina compounds and nitrides which form centres of crystallization for iron; 3) the increase in grain size with additions of over 0.15% aluminium or over 0.50% silicon is explained by the influence of these elements on the liquid/nucleus surface tension; 4) addition of 0.5 - 3.0% chromium does not

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Primary Structure of Low-Carbon Steel

affect the grain size of the steel nor its surface
tension.

There are 3 figures (plates), 1 table and 7 references,
6 of which are Soviet and 1 German.

ASSOCIATION: Institut Metallurgii AN SSSR (Institute of
Metallurgy, AS USSR)

SUBMITTED: December 16, 1958

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SOV/180-59-3-9/43

AUTHORS: Moldavskiy, O.D. and Pronov, A.P. (Moscow)

TITLE: Influence of Primary Structure of Steel on its
Tendency to Form Hot Cracks

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh
nauk, Metallurgiya i toplivo, 1959, Nr 3, pp 47-51 (USSR)

ABSTRACT: A.P.Bochvar (Ref 1), V.I.Dobatkin (Ref 2) and others
(Ref 3 and 4) have indicated the effect of metal primary
structure on the formation of cracks during
solidification. The present authors have shown that
these considerations apply to steel as well as non-
ferrous metals. They give some of their results for
low-carbon steel containing aluminium, silicon or
chromium. Test conditions were chosen to reduce to
negligible proportions the influence of the width of
the "effective interval" of crystallization on the
tendency to crack. The strength of the steel on
crystallization was taken as the ratio of the load at
which the crack forms to the cross-sectional area at the
crack: the authors admit that the corresponding index
of resistance to cracking is only relative. The test
steel was poured into a special metal mould (Fig 3)

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so that one end of the solidifying specimen was held

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Influence of Primary Structure of Steel on its Tendency to
Form Hot Cracks

motionless while the other was attached to a movable head. Measurements were effected with the aid of a strain-gauge bridge circuit (Fig 2); the principles of this circuit have been discussed in literature (Ref 7). The authors have explained previously (Ref 5) the behaviour of aluminium present in excessive amounts. Their present work has shown a close relation between aluminium content and structure (Fig 4) and resistance to cracking (Fig 5). The greatest resistance is shown by metal with a fine primary structure. The authors note that in their work no eutectic films, which could influence the results are formed. With silicon primary structure coarsening occurred at contents over 1% (Fig 6). Fig 7 shows that the relation between resistance to cracking and silicon content is similar to that for aluminium. With chromium, little change in primary structure of either low or high carbon steels occurs over the range 0.5 to 3% (Fig 8); the resistance to cracking remains unchanged over this range but below 0.5% the resistance falls (Fig 9). In general, the resistance to

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cracking during crystallization is 0.4 to 0.8 kg/mm²,
the primary structure being the dominant factor for
steels whose structure is a single-phase solid
solution of any element in iron. High plasticity at
the solidification temperature reduces the tendency to
hot cracking. There are 9 figures and 11 references,
8 of which are Soviet, 2 German and 1 English.

SUBMITTED: January 22, 1959

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PHASE I BOOK EXPLOITATION

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Pronov, Aleksey Petrovich

Kristallizatsiya stal'nogo slitka (Crystallization of the Steel Ingot)
Moscow, AN SSSR, 1960. 148 p. Errata slip inserted. 2,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni A.A. Baykova.

Resp. Ed.: A.M. Samarin, Corresponding Member, Academy of Sciences USSR; Ed. of
Publishing House: I.G. Kudasheva; Tech. Ed.: V.V. Bruzgul'.

PURPOSE: This book is intended for metallurgical engineers and scientific research
workers dealing with the steel making process.

COVERAGE: The book presents results of investigation of the process of continuous
steel casting, the rate of crystallization in an ingot and the formation of its
primary structure. Methods of melting and teeming are reviewed. Causes of hot
cracks on the surface of ingots are analyzed and the experience gained in casting
large steel ingots and results of investigation of their structure and defects
are presented. Deductions are made on the regularity pattern in properties

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Crystallization of the Steel Ingot

(fluidity, ductility, linear shrinkage) of liquid steel and steel during crystallization. A new shape of large ingots is proposed; an improved method of steel making as well as the temperature régime for teeming are recommended. No personalities are mentioned. There are 59 references: 56 Soviet, 2 German, and 1 English.

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PART I. STEEL CRYSTALLIZATION UNDER CONDITIONS OF CONTINUOUS [INGOT] CASTING

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Basic principles of continuous casting

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Methods of continuous casting

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Significance of some process factors on the development
of methods of continuous casting

13

Investigation of the crystallization rate of an ingot

15

Formation of the primary structure of a continuous ingot

21

Influence [of the conditions] of the steel-making process
on the ingot quality

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Experience in teeming the killed medium-carbon steel

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S/180/60/000/01/012/027
E111/E135
AUTHORS: Belova, L.M., Moldavskiy, O.D., and Pronov, A.P. (Moscow)
TITLE: Influence of the Nature of Grain Boundaries¹⁸ on the
Strength of Steel in Solidification
PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh
nauk, Metallurgiya i toplivo, 1960, Nr 1, pp 90-92
(+ 1 plate) (USSR)

ABSTRACT: Grain boundaries are particularly important for the strength of cast materials. Sulphur and phosphorus have a great effect on the tendency of steel to hot cracking. The authors describe their experiments on this effect and on influence of different deoxidizing procedures. Armco iron (0.04% C) and type U7 carbon steel (0.67% C) were melted in a basic-lined 10-kg high-frequency induction furnace and cast at a temperature 10-15 °C above the liquidus. Tendency to hot cracking was studied with an apparatus previously described by Moldavskiy and Pronov (Ref 1). Grain-boundary structure was studied with an graphically and with an electron microscope, V.Ya. Nemykina and P.V. Churayev participating. Inclusions were also studied. The influence of sulphur

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Influence of the Nature of Grain Boundaries on the Strength of Steel in Solidification

was investigated during solidification of technical pure iron having up to 0.20% S. The steel was deoxidized with 0.3% Al in the ladle or 1.0% silicocalcium added in the crucible. The effect of sulphur is shown in Fig 1, where strength on solidification is shown as a function of sulphur content for the two deoxidation procedures (curves 1 and 2 respectively), the effect being particularly marked with silicocalcium. Fig 2 shows strength of low-carbon steel with 0.2% S plotted against aluminium content, indicating that resistance to hot cracking rises a little as aluminium-content increases from about 0.2 to about 0.6, little further effect being obtained. In non-metallic inclusions (analyses in Table 1) sulphur exists as aluminium sulphide, precipitated at grain boundaries (Fig 3) and not as eutectic layers. Complex sulphides (Fe, Ca)S precipitate as envelopes on silicates, probably without affecting the increase in tendency to hot-cracking. The influence of phosphorus was investigated during solidification of

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Influence of the Nature of Grain Boundaries on the Strength of Steel in Solidification

technically pure iron and 0.5%-C steel, deoxidized with 0.5% Si; the element (up to about 0.45%) was added as ferro-phosphorus. Fig 5 shows strength as a function of phosphorus content for 0.04 and 0.50% C steels (curves 1 and 2 respectively). Phosphorus thickens grain boundaries (Figs 6, 7) and in the 0.50% C steel leads to complete isolation of grains (Fig 8). The nature of the precipitated phosphorus non-metallic inclusions for this steel with 0.335% P and 0.50% Si is shown in Fig 9. A finer grain structure, obtained by saturations with nitrogen, leads to higher strength on solidification. There are 9 figures, 1 table and 2 Soviet references.

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SUBMITTED: June 24, 1959



GULYAYEV, B.B.(Leningrad); PROMOV, A.P.(Leningrad); TERYAYEVA, Z.S.
(Leningrad).

Academician Nikolai Timofeevich Gudtsov (1885-1957) Izv.
AN SSSR. Otd. tekhn. nauk. Met.1 Topl. no.5:3-12 S-0 '60.
(MIRA 13:11)

(Gudtsov, Nikolai Timofeevich, 1885-1957)
(Bibliography--Physical metallurgy)

18,9200

1418, 1454, 1045

S/180/61/000/001/009/015
E071/E433

AUTHORS: Belova, L.M., Moldavskiy, O.D. and Pronov, A.P. (Moscow)

TITLE: The Influence of Oxygen¹⁶ Containing Compounds of Niobium
on the Resistance of Low Carbon Steel to Cracking ^{18 27}

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh
nauk, Metallurgiya i toplivo, 1961, No.1, pp.119-121

6 TEXT: It was stated in a number of papers dealing with the
welding of steel that the resistance to cracking of a weld made
with electrodes alloyed with niobium increases at first and then
decreases sharply, depending on the concentration of niobium in
the weld. The authors attempted to determine the composition of
the inclusions formed in steel-niobium compounds, their
distribution, their amount and their influence on the resistance
of steel to cracking. Armco iron was used for the investigations.
Melts were made in a 10 kg induction furnace using a magnesite
crucible. The deoxidation and alloying of the steel was done
solely with ferroniobium (which was added into the crucible
2 minutes before teeming) in quantities such that a 0.4 to 4.5%
niobium content was obtained. Chemical composition of
ferroniobium, %: Nb 54.40; Si 11.29; Al 5.17; C 0.09;
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S 0.013; P 0.11. Specimens for the determination of non-metallic inclusions were cast in steel moulds 28 mm in diameter and 110 mm high. Specimens for determining the resistance to cracking were cast from each heat of metal using a method described in earlier work (Ref.2). The microstructure of the steel and the distribution of non-metallic inclusions were determined metallographically. In addition, qualitative and quantitative analysis of inclusions was carried out (by the method developed by Yu.T.Lukashevich-Duvanova). It was found that the amount of inclusions, their structure and composition change considerably with the content of niobium in steel (see table). The influence of inclusions formed by aluminium and silicon, introduced with ferroniobium was described earlier (Ref.2). In the case of niobium contents of up to 0.5%, comparatively large inclusions of a globular shape of a complicated structure (Fig.1a) were predominant. The above inclusions coagulate easily and consist of niobites (NbOFeO). On increasing the niobium content up to 1%, in addition to globular niobite inclusions, there were some crystalline precipitates of niobium oxides, the proportion of which increases with increasing niobium content. The latter inclusions

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were found to be free lower oxides of niobium. With a further increase in the content of niobium in steel the supersaturation of NbOFeO solution in niobites takes place leading to the formation of niobium oxides inclusions in the form of branches and rods (Fig.1,6,B), in addition to niobites. The amount of niobites decreases and even totally disappears at a niobium content in steel of up to 1.5%. At a still higher concentration of niobium (above 1.5%), in addition to blue (NbO₂) crystals, dull white crystals of Nb₂O₅ in the form of branches appear (Fig.12). A study of the structure of steel alloyed with niobium indicated that a noticeable effect appears at an Nb content exceeding 1%. At first this influence is visible in a more pronounced polyhedric shape of the grains (Fig.3a,6,B); further increase in the niobium concentration leads to a considerable diminution of the grain size (Fig.32). The influence of niobium on the resistance of steel to cracking (Fig.2) is in accordance with the shape and distribution of niobium inclusions. At a niobium content below 0.5% the resistance to cracking increases; with the appearance of

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The Influence of Oxygen ...

independent oxide inclusions of a boundary nature of precipitation the resistance to cracking decreases whilst a further increase in the niobium content, when the predominant form of inclusions are higher oxides (NbO_2 and Nb_2O_5) separating on grain boundaries, the resistance to cracking decreases to a minimum. Some increase in the resistance to cracking at a niobium content above 2% is apparently associated with the influence of niobium on the diminution of the size of the crystals leading to a spreading of low-melting precipitates over a larger surface area and thus reducing their influence on the properties of the solidified metal. There are 3 figures, 1 table and 2 Soviet references.

SUBMITTED: April 1, 1960

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MOLDAVSKIY, O.D. (Moskva); PRONOV, A.P. (Moskva); Prinimali uchastiye:
VASLYANINA, O.V.; LUKASHEVICH, V.Ya.; KRYGLOVA, Ye.V.

Speed of removal of nonmetallic oxide inclusions in liquid steel. Izv.
AN SSSR. Met. i gor. delo no.5:23-34 S-0 '64.

(MIRA 18:1)

LYUBIMOV, I.M.; PROTOPCPOV, O.V.; BAKHOVKIN, A.M.; SEN'KIN, I.T.

Electric upset forging of heat-resistant and stainless steels and alloys. Kuz.-shtam.proizv. 6 no.1:5-10 Ja '64. (MIRA 17:3)

NORKIN, Yakov Abramovich, inzh.; VOZHDAYEV, Ivan Nikolayevich, inzh.;
PODOL'SKIY, Viktor Il'ich, inzh.; PONOMARENKO, Vasilii
Timofeyevich, inzh.; PRONOV, Konstantin Konstantinovich, inzh.;
REMPEL', Aron Iosifovich, inzh.; UGLINSKIY, Anatoliy Yakovlevich,
inzh.; KHITROVA, N.A., tekhn. red.

[Repair of diesel locomotives] Remont teplovozov. [By] IA.A.Norkin
i dr. Moskva, Transzheldorizdat, 1962. 300 p. (MIRA 15:12)
(Diesel locomotives—Maintenance and repair)

L 00888-66 EWT(m)/EFF(c)/ENP(j)/EWA(c) RPL WW/JW/RM

ACCESSION NR: AP5020088

UR/0079/65/035/008/1500/1500
546.185+547.412.62

AUTHOR: Grinblat, M. P.; Prons, V. N.

TITLE: Certain properties of 1,1,5,5-tetra(trifluoromethyl)2,2,7,7-tetraphenyl-
cyclotetraphosphonitrile

SOURCE: Zhurnal obshchey khimii, v. 35, no. 8, 1965, 1500

TOPIC TAGS: halogenated organic compound, fluorinated hydrocarbon, phosphonitrile

ABSTRACT: The title compound was synthesized and was found to be stable during a prolonged boiling with a 10% aqueous solution of potassium hydroxide. This stability is due to the conjugative effect of the phenyl group and it is reflected in a strengthened trifluoromethyl-phosphorus bond. The title compound crystallized from methyl alcohol is a white crystalline material with a melting point of 141.5-142°C. It dissolves in benzene, alcohol, and methyl chloride. Its elemental analysis gave (in %): C--43.93; H--2.73; N--7.39; F--29.73, and molecular weight 753 (cryoscopically from camphor). Its calculated elemental composition, assuming formula $C_{28}H_{20}F_{12}N_4P_4$, is (in %): C--44.00; H--2.64; N--7.33; F--29.82; and molecular

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ACCESSION NR: AP5C20088

weight 764. When sealed in an ampoule in argon atmosphere, it does not change color up to 380°C (at 400°C a portion of the sample slightly darkened). In cold, it does not decompose in concentrated nitric acid. It dissolves in fuming nitric acid but dilution with water results in precipitation of the original crystals (unchanged melting point and ultimate analysis).

ASSOCIATION: none

SUBMITTED: 18Jan65

ENCL: 00

SUB CODE: OC, GC

NO REF SOV: 001

OTHER: 001

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DP

L 11201-66 EWT(m)/EWP(j) RM 3
ACC NR: AP6002865 SOURCE CODE: UR/0286/65/000/024/0021/0021

INVENTOR: Grinblat, M. P.; Bartashev, V. A.; Klebanskiy, A. L.; 29
Chernyavskaya, T. L.; Prons, V. N.; Sokolov, Ye. I.; Sharov, V. N.; B
Saratovkina, T. I.

ORG: none

TITLE: Preparative method for diaryl- or dialkyl-chlorophosphazobis(perfluoroalkyl)phosphines. Class 12, No. 1768966 [announced by the All-Union Scientific Research Institute of Synthetic Rubber im. Academician S. V. Lebedev (Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 21

TOPIC TAGS: organic phosphorus compound 44,55

ABSTRACT: An Author Certificate has been issued for a preparative method for diaryl or dialkyl-chlorophosphazobis(perfluoroalkyl)phosphines [sic]. Diaryl- or dialkyl-phosphorus trichlorides are reacted with bis(perfluoroalkyl)aminophosphines in the presence of tertiary amines at -60 to -40C in an inert solvent, such as benzene. [SM]

SUB CODE: 07/ SUBM DATE: 09Oct64/ ATD PRESS: 4192

Card 1/1

UDC: 547.419.1.07

L 24517-66 EWT(1)/EWT(m)/EWP(j)/T IJP(c) WW/PO/RM

ACC NR: AP6009512

SOURCE CODE: UR/0413/66/000/005/0021/0022

AUTHOR: Grinblat, M. P.; Klebanskiy, A. L.; Bartashev, V. A.; Prona, V. H.;
Chernyavskaya, T. L.; Sokolov, Ye. I.; Sharov, V. N; Markova, V. I.; Saratovkina, T.I.

ORG: none

TITLE: Preparation of phosphonitrile derivatives. Class 12, No. 179311 [Announced
 by the All-Union Scientific-Research Institute of Synthetic Rubber (Vsesoyuznyy
 nauchno-issledovatel'skiy institut sinteticheskogo kauchuka)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 5, 1966, 21-22

TOPIC TAGS: phosphonitrile, phosphonitrile derivative

ABSTRACT: An Author Certificate has been issued describing a method for synthesizing
 phosphonitrile derivatives by the interaction of organophosphorus compounds with
sodium azides in a solvent or with ammonia followed by treatment with chlorine and
 tertiary amine during cooling. To obtain phosphonitrile derivatives with alternating
 substituents at the phosphorus atom, dialkyl(diaryl)-chlorophosphazobis-(perfluoro
 alkyl)phosphines are suggested for use as initial organophosphorus compounds. [LD]

SUB CODE: 11/ SUBM DATE: 18Jan65

Card 1/1 BLG

UDC: 547.419.1.07

PRONSHTEYN, Ya., dotsent, kand.tekhn.nauk

Reviews and bibliography. Avt.transp. 42 no.1:62 Ja '64.
(MIRA 17:2)

URAZGIL'DEYEV, A.Kh.; PROMSKIKH, S.N.; SIVTSOV, G.V.

Hydrogen segregation in steel in the ingot crystallization process.
Trudy LPI no.253:94-101 '65. (MIRA 18:8)

URAZGIL'DEYEV, A.Kh.; PRONSKIKH, S.N.; SIVTSOV, G.V.; CHUKHLOV, V.I.

Behavior of gases in the crystallization process of killed
steel ingots. Izv. vys. ucheb. zav.; Chern. met. 8 no.9:
69-73 '65. (MIRA 18:9)

1. Leningradskiy politekhnicheskii Institut.

ERAZHIL'DEYEV, A.Kh.; PROROKIN, S.N.; SIVISOV, G.V.; RAKOVICH, S.Z.

Effect of the treatment of metals by solid slag mixtures on the
behavior of gases during the crystallization of ingots. Stal'
25 no.2:698-700 Ag '65. (MIRA 18:8)

1. Leningradskiy politehnicheskiy Institut i Sherepovetskiy
metallurgicheskiy zavod.

PRONYAKOV, I.T.

Calculation of oil recovery based on field data. Trudy
VNII no.24:157-172 '59. (MIRA 13:5)
(Oil reservoir engineering)

BOROVSKIY, Boris Yevstaf'yevich; POPOV, Mikhail Dmitriyevich; PRONSHTEYN,
Mark Yakovlevich; BRONSHTEYN, Ya.I., red.; PCHELKIN, Yu.V., red.;
LEVONEVSKAYA, L.G., tekhn. red.; POL'SKAYA, R.G., tekhn. red.

[Manual for automobilists] Spravochnaia kniga avtomobilista. Pod
red. IA.I. Bronsteina. Leningrad, Lenizdat, 1962. 482 p.
(MIRA 15:10)

(Motor vehicles) (Traffic regulations)
(Automobiles—Touring)

KRICHMAR, S.I.; PRONSKAYA, A.Ya.

Diffusion kinetics and mechanism of leveling of roughnesses
during anodic dissolution of copper. Report 2. Zhur. fiz.
khim. 39 no.6:1373-1379 Je '65. (MIPA 18:11)

1. Gosudarstvennyy institut azotnoy promyshlennosti,
Dneprodzerzhinskiy filial. Submitted April 5, 1963.

KRICHMAR, S.I.; PRONSKAYA, A.Ya.

Leveling effect in electrochemical polishing of metals. Elektro-
khimiia 2 no.1:69-73 Ja '66. (MIRA 19:1)

1. Gosudarstvennyy institut azotnoy promyshlennosti, Dneprodzer-
zhinskiy filial. Submitted December 26, 1964.

KRICHMAR, S.I.; PRONSKAYA, A.Ya.

Mechanism of the leveling effect in the cathodic deposition of nickel from coumarin-containing electrolytes. Zhur. fiz. khim. 39 no.3:741-744 Mr '65. (MIRA 18:7)

1. Dneprodzerzhinskiy filial Gosudarstvennogo nauchno-issledovatel'skogo i proyektnogo instituta azotnoy promyshlennosti i produktov organicheskogo sinteza.

MALYSHEV, A.A., kand.sel'skokhoz.nauk; PATRABOLOVA, I.G., kand.biolog.
nauk; UTYAKOV, P.A.; UTYAKOVA, D.P.; INYAKOVA, A.P., mladshiy
nauchnyy sotrudnik; VINTER, A.L., vrach; PRONSKAYA, K.I., red.;
STEBLYANKO, T.V., tekhn.red.

[Teberda; sketches of the Teberdinskiy Preserve] Teberda;
ocherki o Teberdinskom zapovednike. Stavropol', Stavropol'skoe
knizhnoe izd-vo, 1958. 153 p. (MIRA 12:12)
(Teberdinskiy Preserve)

STOYANOV, Filipp Dmitriyevich; SHUKEVICH, Lidiya Ivanovna; ~~FRONSKAYA, K.I.,~~
redaktor; STEBLYANKO, T.V., tekhnicheskiiy redaktor

[The Pyatigorsk health resort] Kurort Piatigorsk. [Stavropol']
Stavropol'skoe knizhnoe izd-vo, 1957. 97 p. (MIRA 10:11)
(PYATIGORSK--HEALTH RESORTS, WATERING PLACES, ETC.)

FRONSKAYA, L. Ya.

Fronskaya, L. Ya. - "The effect of an impellent nutritive reaction on the secretory reaction"
Trudy fiziol. laboratoriy im. Pavlova, Vol. XV, 1949, p. 45-48

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949.)

BAICIUNAS, Jonas; DOVYDAITIS, Vytantas; OSKINIS, Bronius; VILPISAUSKAS, V.,
red.; PRONSKIETYTE, D., red.; PAKERYTE, O., tekhn. red.

[Following the clouds] Debesu keliais. Vilnius, Valstybine
politines ir mokslines literaturos leidykla, 1961. 190 p.

(MIRA 15:3)

(Lithuania—Gliding and soaring)

KARPAVICIUS, P.; PROMSKIETYTE, D., red.; VYSOMIRSKIS, C., tekhn.
red.

[Practical guide to color photography] Spalvotosios fotografijos praktika. Vilnius, Valstybine politines ir mokslines literatūros leidykla, 1961. 235 p. (MIRA 15:3)
(Color photography)

URAZGEL'DEVAN, A.M.; PRUSSEIN, S.N.; SOSIPETROV, V.T.; SEMAKOVA, I.S.;
TECHNIKOV, G.A.; RAKOVICH, E.Z.

Behavior of gases in the crystallization process of rimmed steel
ingots. Izv.vyschishch. izh. izh. izh. 2 no.8:44-49 '66.
(MIRA 18:8)

L. Leningradskiy politicheskii institut.

PRONTARSKIY, A.F., kand.tekhn.nauk

Congress of the International Union of Railways. Elek.1 topl.
tiaga 7 no.1:46-48 3a '63. (MIRA 1612)
(Railroads--Congresses)

PRONTARSKIY , A. F.

PRONTARSKIY, A. F. Automatic Forming of Mercury-Arc Rectifiers (Avtomaticheskaya Formovka Rtutnykh Vypryamiteley), pp. 4-5

An automatic control device suggested for use in forming mercury rectifiers is briefly described. This suggestion won Prontarskiy a third prize at the Seventh All-Union Contest on Power Economizing. (Diagram, photo and graphs).

SO: PROMYSHLENNAYA ENERGETIKA, No. 10, Oct. 1952, Moscow (1502270)

FRONTARSKIY, A.F., kandidat tekhnicheskikh nauk; GOKHSHTEYN, B.Ya.,
kandidat tekhnicheskikh nauk, redaktor.

Equipment used in automatic electric traction substations.
Trudy TSNII MPS 68:6-169 '52. [Microfilm] (MLRA 7:10)
(Electric railroads--Substations)

PRONTARSKIY, A.F. kandidat tekhnicheskikh nauk.

Device for automatic control of vacuum and temperature in
mercury-arc rectifiers. Vest. TSNI MPS 15 no.4:21-25 D '56.
(MLRA 10:2)

(Mercury-arc rectifiers)

PRONTARSKIY, A.F., kand.tekhn.nauk; SLOMYANSKIY, A.V., kand.tekhn.nauk,
dot'sent; FUFRIYANSKIY, N.A., doktor tekhn.nauk, prof.

Development of scientific investigations in the field of locomotive
traction and railroad electrification. Vest.TSNII MPS 16 no.6:3-14
S '57. (MIRA 10:10)

(Locomotives) (Railroads--Electrification)

PRONTARSKIY, A.F., kand.tekhn.nauk

Important problems in the electrification of railroads.
Zhel.dor.transp. 43 no.11:21-26 N '61. (MIRA 14:11)
(Railroads—Electrification)

PRONTARSKIY, A.F., kand.tekhn.nauk

Operation and repair of electric locomotives. Vest.TSNII MPS
18 no.3:59-61 by '59. (MIRA 12:8)
(Electric locomotives--Maintenance and repair)

PRONTARSKIY, V.; FILIPPOV, V.

An efficient and strong organization is needed. Av.transp. 40
no.7:33-35 J1 '62. (MIRA 15:8)
(Transportation, Automotive)

PRONTSKUS, A. P.

PRONTSKUS, A. P. -- "Changes in the Secretion and Motor Functions of the Stomach of Ulcer Patients in the First 24 Hours and Later, Following Resection of the Stomach." Vil'nyus State U imeni V. Kapsukas. Chair of General Surgery and Topographical Anatomy. Vil'nyus, 1955. (Dissertation for the Degree of Candidate in Medical Sciences)

SO: Knizhnaya Letopis', No 1, 1956

PRONYAKIN, Yuriy

Time of military hardening. Voen. znan. 41 no.8:6-7 Ag '65. (MIRA 18:7)

PRONYAKOV, G.S.
PRONYAKOV, G.S., inzh.

Using powder materials in reconditioning lead-bronze bearings. Vest.
mash. 38 no.2:61-63 F '58. (MIRA 11:1)
(Powder metallurgy)
(Bearings (Machinery)--Maintenance and repair)

PRONYAKOV, G.S.; VORONKOV, N.D.

Automatic pressing of metal powders with a hydraulic press. Avt.prom.
29 no.10:29-30 0 '63. (MIRA 16:10)

1. Nauchno-issledovatel'skiy institut avtomobil'noy promyshlennosti
i Michurinskiy zavod imeni Lenina.

FRONYAKOV, G.S., kand. tekhn. nauk; NIKITINA, N.V., inzh.

Manufacturing cermet piston rings. Vest. mashinostr. 44
no.5:42-45 My '64. (MCRA 17:6)

PRONYAKOV, G.S.

AUTHOR: Pronyakov, G.S., Engineer.

PERIODICAL: Vestnik Mashinostroyeniya, 1958, No.2, pp.61-63 (USSR).

ABSTRACT: The Restoration of Lead Bronze Bearings with Powdered Materials (Vosstanovleniye svintsovistobronzovykh podshipnikov s primeneniyem poroshkovogo materiala)

APPROVED FOR RELEASE: 07/13/2001

CIA

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Card 1/2

ss with Powdered Materials
restored bearings exceeds that
of friction with oil lubri-
cants at least equivalent to those

The use of powdered material obtained either by mixing lead bronze for restoring worn lead variants, namely, sintering the bearing in a steel mould with freely poured powder, sintering the bearing in a mould with axial pressure and sintering without mould by pressing the protective medium is cast iron swarf mixed with 3.5% graphite powder of 60 mesh. Although best results are obtained with the second variant, the third is satisfactory and more convenient in practice. A fixture for its application is illustrated (Fig.3). The compacting pressure and the sintering conditions which are necessary for successful restoration were found only after careful tests. A pressure of 600 kg/cm² is recommended. Sintering at 800 °C held for 90 minutes gives an adequate density. Tests have established

PRONYAKOV, I.G., mayor, voyenny letchik pervogo klassa

Fullout to the calculated position of turn beginning for a landing
pattern with the help of a direction finder. Vest. Vozd. Fl. 41
no. 7:85-86 J1 '58.

(MIRA 11:7)

(Navigation(Aeronautics)
(Radio direction finders)

SOV/86-58-7-34/38

AUTHOR: Pronyakov, I. G., Maj, Military Pilot First Class

TITLE: Approaching the Point for Beginning the Turn on the Landing Course with the Use of Radio Direction Finder (Vykhod v raschetnuyu tochku nachala razvorota na posadochnyy kurs s pomoshch'yu radiopelengatora)

PERIODICAL: Vestnik vozdushnogo flota, 1958, Nr 7, pp 85-86 (USSR)

ABSTRACT: In this article the author describes a method by which the pilot of a singleseater fighter is able to approach accurately the point at which, with the aid of radio direction finder, the turn on the landing course should begin.

Card 1/1

PRONYAKOV, G.S.

122-2-21/33

AUTHOR: Pronyakov, G.S., Engineer.

TITLE: The Restoration of Lead Bronze Bearings with Powdered Materials (Vosstanovleniye svintsovistobronzovykh podshipnikov s primeneniye poroshkovogo materiala)

PERIODICAL: Vestnik Mashinostroyeniya, 1958, No.2, pp.61-63 (USSR).

ABSTRACT: The use of powdered material obtained either by mixing 70% copper powder and 30% lead powder or by pulverising cast lead bronze for restoring worn lead bronze bearings is illustrated in principle in its three variants, namely, sintering the bearing in a steel mould with freely poured powder, sintering in a mould with axial pressure and sintering without mould by pressing the freely poured powder radially against the bearing. The protective medium is cast iron swarf mixed with 3.5% graphite powder of 60 mesh. Although best results are obtained with the second variant, the third is satisfactory and more convenient in practice. A fixture for its application is illustrated (Fig.3). The compacting pressure and the sintering conditions which are necessary for successful restoration were found only after careful tests. A pressure of 600 kg/cm² is recommended. Sintering at 800 °C held for 90 minutes gives an adequate density. Tests have established

Card 1/2

122-2-21/33

The Restoration of Lead Bronze Bearings with Powdered Materials

that the fatigue resistance of restored bearings exceeds that of new bearings. The coefficient of friction with oil lubrication and the wear resistance are at least equivalent to those of original bearings.
There are 5 figures.

AVAILABLE: Library of Congress
Card 2/2

PRONYAKOV, I.G., mayor, voyennyi letchik pervogo klassa

• Pullout to the calculated position of turn beginning for a landing
pattern with the help of a direction finder. Vest. Vozd. Fl. 41
no. 7:85-86 J1 '58. (MIRA 11:7)

(Navigation(Aeronautics))
(Radio direction finders)

SOV/86-58-7-34/38

AUTHOR: Pronyakov, I. G., Maj, Military Pilot First Class
TITLE: Approaching the Point for Beginning the Turn on the
Landing Course with the Use of Radio Direction Finder
(Vykhod v raschetnuyu tochku nachala razvorota na
posadochnyy kurs s pomoshch'yu radiopelengatora)
PERIODICAL: Vestnik vozdushnogo flota, 1958, Nr 7, pp 85-86 (USSR)
ABSTRACT: In this article the author describes a method by which
the pilot of a singleseater fighter is able to approach
accurately the point at which, with the aid of radio
direction finder, the turn on the landing course
should begin.

Card 1/1

PRONYAKOV, I. T.

PA40T78

USSR/Petroleum Industry
Oil Regions

Nov 1947

"Utilization of Trans-contour Flooding at the Tashkala Deposits," I. T. Pronyakov, B. S. Kharchenko, Gromnyy, 11 pp

"Nef't Khozyay" No 11

Article discusses various aspects of the flooding operation. Introduction describes present condition of the oil field, the necessity for flooding in the 12th layer of the Tashkala deposits, the amount of water turnover necessary for the flooding operation, selection of a point for the injection of the water, water supply and purification of water, preparations

LC

40T78

USSR/Petroleum Industry (Contd)

Nov 1947

for and results of the tests, and the economy index of the effectiveness for the adoption of trans-contour flooding. This method has given good pressure for six years in the 12th layer of the deposits.

LC

40T78

PROVIAV, T. T., Engineer Gani Tech Del

Dissertation: "Gas Reproduction of the First
Stratum in the First Field of the "Halqobekneft"
Trust."

13/6/50

Moscow Order of the Labor Red Banner Petroleum
Inst Ineni Academician I. K. Gubkin.

SO Vecheryaya Moskva
Sum 71

PRONYAKOV, I.T.

~~Maximum recovery factor of oil pools including flooding methods.~~
Azerb. neft. khez. 38 no.3:22-24 Mr '59. (MIRA 12:6)
(Oil fields--Production methods)

PRONYAKOV, M.G.
USSR/Pharmacology, Toxicology. Chemotherapeutical Preparations

V-7

Abs Jour : Ref Zhur - Biol., No 5, 1958, No 23447

Author : Pronyakov M.G.

Inst : Not Given

Title : The Treatment of Chronic Purulent Inflammation of the Middle
Ear with a 1% Sintomycin Emulsion.

Orig Pub : V sb.: Gnoyni otit, yego oslozhneniya i lyechenie. Saratov,
1957, 81-83

Abstract : Most effective was the treatment with a 1% sintomycin
emulsion in chronic purulent uncomplicated mesotympanitis
with a major perforation of the tympanic membrane and in meso-
epitympanitis, complicated by a minor cholesteatoma.

Card : 1/1

PRONYAKOVA

USSR

Comparative biochemical studies of actinophage-sensitive and -resistant forms of *Actinomyces pleuropneumoniae* (Yakovlev). A. N. Belozerskii, M. P. Znamenskaya, Ya. I. Rautenshtein, M. S. Odintsova, G. V. Pronyikova, and N. A. Rodionova (Inst. Biochem. and Inst. Microbiol., Acad. Sci. U.S.S.R., Moscow). *Biokhimiya* 19, 236-45 (1954).—The protein constituents of *Actinomyces* vary widely in relation to their amino acid content and generally present a picture similar to that of higher organisms. The following amino acids were identified: aspartic and glutamic acids, serine, glycine, α -alanine, threonine, tyrosine, tryptophan, cysteine, methionine, valine, leucine, isoleucine, phenylalanine, proline, arginine, histidine, and lysine. Deoxyribonucleic acid in *Actinomyces* is more mobile and less aggregated than in higher plants or animals. In the process of mycelial development of *Actinomyces* the nucleic acids undergo some regular qualitative changes as in the case of bacteria and other low forms of living organisms. No quantitative differences were discerned in the content of the nucleic acids in the phage-susceptible and phage-resistant *Actinomyces*. However, a difference is discernible in the amino acid content of the two. This is especially true of the dicarboxylic and oxoamino acids. The phage-resistant *Actinomyces* are characterized by a greater catalase activity, which is more stable in the presence of inhibitors. The phage resistance of *Actinomyces* appears to be basically related to changes in the enzyme complexes, which appear as a result of the interaction between the *Actinomyces* and the phage.

B. S. Levige

PRONYAKOVA, G.V.

Biosynthesis of vitamin B₁₂ and porphyrins by a culture of propionic
bacteria. Biokhimiia 25 no.2:296-305 Mr-Apr '60. (MIRA 14:5)

1. Institut biokhimii im. A.N.Bakha Akademii nauk SSSR, Moskva.
(PROPIONIBACTERIUM) (CYANOCOBALAMINE)
(PORPHYRIN AND PORPHYRIN COMPOUNDS)

PRONYAKOVA, G.V.

Inclusion of an acetate and glycine into a vitamin B12 molecule in
course of its biosynthesis. Dokl. AN SSSR 123 no. 2: 331-334 N '58.
(MIRA 11:12)

1. Institut biokhimii imeni A.N. Bakha AN SSSR. Predstavleno
akademikom A.I. Oparinym.
(ACETATES) (GLYCINE) (CYANOCOBALAMINE)

7(3)

SOV/20-123-2-34/50

AUTHOR:

Pronyakova, G. V.

TITLE:

Inclusion of Acetate and Glycine Into the Vitamin B₁₂ Molecule
in the Course of Its Biosynthesis (Vkl'yucheniye atsetata i
glitsina v molekulu vitamina B₁₂ v protsesse yego biosinteza)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 2, pp 331-334
(USSR)

ABSTRACT:

The hypothesis that the main ways of the biosynthesis of vitamin B₁₂ and of the porphyrine biosynthesis took place jointly has attracted more and more attention since the structural formula of vitamin B₁₂ became known (Refs 1,2). The most convincing proof of this hypothesis is the inclusion of substances into the vitamin molecule which are porphyrine predecessors. The author wanted to investigate such an inclusion of the carbon atoms of acetic acid and of glycine into the vitamin molecule. Several experiments (Refs 6-12) proved that both carbon atoms of the acetate and of the α -carbon atom of glycine are used for the formation of the porphyrine molecule

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SOV/20-123-2-34/50

Inclusion of Acetate and Glycine Into the Vitamin B₁₂ Molecule in the Course of Its Biosynthesis

of the animal organism. The inclusion of the carboxyl atom of glycine has, however, become known only with plant and bacteria porphyrines (Refs 6-12). The author carried out the investigations on a culture of *Propionibacterium shermanii*, which is capable of accumulating great amounts of vitamin B₁₂ in its cells. The following marked substances were used: acetate 1-C¹⁴, acetate 2-C¹⁴, glycine 1-C¹⁴, and glycine 2-C¹⁴. Their concentration amounted to 10 μ Ci per 100 ml in all experiments. Table 1 shows the results obtained. It may be seen from them that all 4 marking substances were included into the vitamin, glycine 2-C¹⁴, however, best. The considerable inclusion of the carboxyl carbon from the glycine into the vitamin molecule is interesting: 25-40% of the other marking substances. As is known, the carboxyl carbon of glycine 1-C¹⁴ is not at all included into animal porphyrines (Refs 7,8), plant molecules utilize it, however (Refs 10-12). Contrary to other opinions (Ref 12) the author advocates the idea that the relatively high

Card 2/4

SOV/20-123-2-34/50

Inclusion of Acetate and Glycine Into the Vitamin B₁₂ Molecule in the Course of Its Biosynthesis

capability of glycine 1-C¹⁴ of entering into vitamin B₁₂ tends to show a higher specific utilization of this compound. The final solution of this problem has to be found in future investigations. The first step in this direction, the degradation of the vitamin - the hydrolysis for the purpose of separating the nucleotide part was achieved by the author (Ref 14). It may be seen from table 2 that this separation does not decrease the radioactivity of the vitamin (from both acetates and from glycine 2-C¹⁴). The vitamin marked by the carboxyl atom of glycine considerably decreases its activity in hydrolysis (by 45-70%). It may be concluded from this that both carbon atoms of the acetate, and the α-carbon atom of glycine are contained only in the porphyrine-like (chromophoric) part of the molecule, whereas the carboxyl carbon of glycine is contained in both parts of the vitamin molecule. Thus, vitamin B₁₂ with respect to its degree of utilization of the carbon atoms of the acetate and glycine for the formation of its molecule is closer

Card 3/4

SOV/20-123-2-34/50

Inclusion of Acetate and Glycine Into the Vitamin B₁₂ Molecule in the Course of Its Biosynthesis

to plant pigments than to animal pigments. Experiments with additions of vitamin B₆ as well as of its antagonists did not effect any change of the yields or of the radioactivity of vitamin B₁₂. There are 2 tables and 19 references, 3 of which are Soviet.

ASSOCIATION: Institut biokhimii im. A. N. Bakha Akademii nauk SSSR (Institute of Biochemistry imeni A. N. Bakh, AS USSR)

PRESENTED: July 3, 1958, by A. I. Oparin, Academician

SUBMITTED: June 30, 1958

Card 4/4

PRONYAKOVA, G.V. (Moskva).

~~Biosynthesis of vitamin B₁₂~~. Trudy Inst. okean. 23:3-13 '57.
(VITAMINS--B) (MIRA 11:3)

~~FRONYAKOVA, G. V.~~ BLOZERSKIY, A. N., ZNAMINSKAYA, M.P., RAUTENSTEIN, Ya. I.,
OBINTSOVA, M. S. and ROBIONOVA, N. A.

"Comparative biochemical studies of sensitive and resistant forms of actinomyces
glohisporus strobotomycini kras. against actino fagins." Biochemistry, Issue 1, pp 236.

SHNEYDEROVA, V.V.; PRONYAKOVA, V.M.; TYUNTINA, Z.Ya.

Testing the durability of insulating lacquer paints and film coatings protecting ferroconcrete surfaces from crack formation. Iakokrat. i kh prim. no.5:74-75 '60. (MIRA 13:11)

(Protective coatings---Testing)

KOZLOV, V.V.; PRONYAKOVA, V.M.

Naphthalene series. Part 30: α -Naphthaleneselenic acid. *Chem. Ber.* 18:4;
khim. 1 no.3:493-497 Mr '65.

1. Moskovskiy institut narodnogo khozyaystva im. G.V.Plekhanova.

PRONYAKOVA, V.M.; SHNEYDEROVA, V.V.

Rapid method for the qualitative determination of benzene permeability of laquer-paint coatings on concrete. Lakokras. mat. (MIRA 15:3)
i ikh prim. no.5:69 '61.
(Permeability) (Protective coatings)

PRONYAKOVA, V. M.

Pronyakova, V. M. "A study of the stability of margarine throughout long preservation." Min Trade USSR. Moscow Inst of National Economy imeni G. V. Plekhanov. Moscow, 1956. (Dissertation for the Degree of Candidate in Technical Science)

So: Knizhnaya letopis', No. 27, 1956. Moscow. Pages 94-109; 111.

S/049/61/000/004/003/008
D257/D306

AUTHORS: Bulin, N.K., Bubnova, V.I., and Pronyayeva, Ye.A.

TITLE: Seismicity of Turkmeniya and North-East Iran in 1957 - 1959

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya geofizicheskaya, no. 4, 1961, 534 - 540

TEXT: The authors discuss their own and additional data on the distribution of the epicenters of 183 weak earthquakes in Turkmeniya and N.E. Iran between 1957 and 1959. Most of the observations were made simultaneously at mobile stations -- provided with receivers, recorders and galvanometers and situated at distances of 10 - 300 km from each other -- by the method of N.K. Bulin and Yu.I. Sytin (Ref. 3: Sb. "Problemy neftegazonosnosti Sredney Azii" (Coll. "Problems of the Oil and Gas Content of Central Asia"), nov. ser., Gos- toptekhizdat, Moscow, 1960). Further information from seismograms recorded at 5 fixed stations in Turkmeniya is also included in their

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study. The procedure developed by Ye.A. Rozova (Ref. 2: Tr. sysmol inst. Akad. Nauk SSSR, no. 72, 1936) was followed to determine the epicenter coordinates, the distances being calculated from hodographs of the \bar{P} , P, \bar{S} and S waves plotted at 3 - 8 stations. The earthquakes were grouped into three classes, depending on the error of their epicenter determination: ≤ 25 km, ≤ 50 km and > 50 km. Most of the epicenters were located in mobile belts in platform areas, where the crust has a thickness of 35 - 40 km and more. A crustal origin is postulated for the overwhelming majority of earthquakes, with the exception of a few, very deep-seated foci in the Caspian region. Apart from one tremor in the S.E. Caspian with a strength of 4.75, the other earthquakes possessed magnitudes of less than 4. Of the 58 earthquakes recorded in Turkmeniya, 21 occurred in western and southwestern areas, 36 in the Ashkhabad region and 1 in the north-east of the territory. Such a distribution of epicenters corroborates the suggestion of G.P. Gorshikov (Ref. 6: Tr. seysmol. inst. Akad. Nauk SSSR, no. 122, 1947) and Ye.F. Savarenskiy et al (Ref. 15: Izv. Akad. Nauk SSSR, ser. Geofiz., no. 1, 1953) about

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the existence of two seismically-active zones in Turkmeniya -- Krasnovodsk and Ashkhabad. Seismic activity in the Ashkhabad region appears to be diminishing, since S.V. Medvedev (Ref. 10: Byull. soveta po seysmologii Akad. Nauk SSSR, no. 1, 1955) reports the occurrence of 1500 weak earthquakes during 5 months of 1949 as compared with only 500 for a similar period in 1953. In the Krasnovodsk area a number of earthquakes were recorded along the shore of the peninsula, which, according to Yu.N. Godin (Ref. 16: Sov. geologiya, no. 1, 1958), represents a meridional zone on the Karakum platform with large horizontal gravity-gradients. In this connection the mobile belt in N.E. Turkmeniya, where the one earthquake of 28.2.1957 took place, is also believed to be characterized by abrupt changes in the horizontal gradient of gravity. Similar correlations have been observed too by M. Kurbanov et al (Ref. 17: Izv. Akad. Nauk Turkmenskoy SSR, no. 4, 1959) in other parts of the republic. The seismic data for N.E. Iran, largely based on the work of foreign geophysicists, indicate the localization of epicenters beneath mountain ranges: the El'brus in the west and the Kopet-Daga and Ala-Daga

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in the east. Between 1957 and 1959 there was much activity near the junction of the El'brus and Ala-Daga ranges where Palaeozoic formations are in contact with those of the Mesozoic. A distinctive feature of the seismicity of N.E. Iran is the marked increase in the number of earthquakes towards the close of the study period. The authors conclude by noting the weak nature of earthquakes from 1957 to 1959 in parts of Turkmeniya and N.E. Iran where much stronger tremors have been reported in the past. There are 2 figures and 22 references: 19 Soviet-bloc and 3 non-Soviet-bloc. The reference to the English-language publication reads as follows: A.T. Wilson, Bull.School Orient. Stud. Lond. Inst., 6, 1930.

ASSOCIATION: Vsesoyuznyy geologicheskii institut, upravleniye geologii i okhrany nedr pri sovete ministrov Turkmenskoy SSR (All-Union Geologic Institute, Department of Geology and Protection of Resources, Ministerial Council of the Turkmenian SSR)

SUBMITTED: October 5, 1960
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ACCESSION NR: AP4049240

Feb/Pa-4

SSD/AEWL/AFETR/ESD(t) GW
S/0049/64/000/010/1462/0471

AUTHOR: Bubnova, V. I., Bulin, N. K., Pronyayeva, Ye. A., Rabinovich, Ye. Ya. B

TITLE: Structure of the earth's crust in northern Turkmeniya as determined from transformed earthquake waves

SOURCE: AN SSSR* Izvestiya. Seriya geofizicheskaya, no. 10, 1964, 1462-1471

TOPIC TAGS: seismology, earthquake, seismic wave, geology, transformed seismic wave, Mohorovicic discontinuity, earth crust

ABSTRACT: This study, based on 1961 field work, discusses the results of investigations of the earth's crust carried out along a profile extending from Karashor to Tashauz, about 350 km long, situated in northern Turkmeniya. Earthquakes were recorded by mobile three-component seismic stations of the regional type (simultaneous recording by three seismic stations situated at distances of 5-15 km). Seismic recording by three lasted 7-10 days and an average

... basis of the collected data it was

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ACCESSION NR: AP4049240

established that the earth's crust in this area has a layered structure. The depth and topography of seismic boundaries corresponding to the "basalt" and "granite" surfaces and the Mohorovicic discontinuity were determined. It was found that

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4 figures. ... to study zones of deep faulting. Orig. art. has:

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy geologicheskii institut (All-Union Geological Scientific Research Institute); Upravleniye geologii i okhrany* nedr Turkmen SSR (Administration of Geology and Conservation of Mineral Resources, Turkmen SSR)

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OTHER: 000

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BUBNOVA, V.I.; BULIN, N.K.; PRONYAYEVA, Ye.A.; RABINOVICH, Ye.Ya.

Crustal structure in northern Turkmenistan from data of exchanged waves of earthquakes. Izv. AN SSSR Ser. geofiz. no.10:1462-1471
O '64. (MIRA 17:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskii institut
i Upravleniye geologii i okhrany nedr Turkmenskoy SSR.

PRONYK, V.I.

Determining electron temperatures of diffuse gaseous nebulae.
Izv.Krym.astrofiz.obser. 17:14-41 '57. (MIRA 13:4)
(Nebulae) (Cosmic physics)

PELYKH, N.A.; PRONYUSHKIN, A.V.; GOLOVKOV, V.P.; DOBROVCL'SKIY, G.V.

High-precision chronotron. Prib. i tekhn. eksp. 7 no.2:76-80
Mr-Ap '62. (MIRA 15:5)
(Time measurements)

3/120/61/000/004/011/034
E192/E382

9.7500 (1159)

AUTHORS: Pelykh, A.N. and Pronyashkin, A.V.

TITLE: Instrument for the measurement of time intervals

PERIODICAL: Pribury i tekhnika eksperimenta, ^{U-6} No. 4, 1961,
pp. 83 - 86

TEXT: The time intervals between two electrical pulses can be measured accurately by means of an "oscillator-electronic counter" system. However, such a system is inefficient in that it performs the measurement of only one interval. In the following equipment based on the above principle is described which permits measurement of 100 intervals between pulses. The instrument is based on 2 counters, 2 read-out circuits, a memory circuit based on a double-beam cathode-ray tube and a switching circuit. The operation of the system is as follows. The system is set in its initial position and the pulses generated by a quartz-crystal oscillator are applied to the counter 2 through the switching circuit and an amplifier 2. The other counter 1 is in its zero or initial position. The first relevant pulse is applied to the input

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circuit where it is amplitude-limited. It is then fed to a "resolving-time" circuit and then to the switching circuit. After receiving the first pulse the switching circuit applies the pulses from the quartz oscillator to the counter 1, while counter 2 is stopped. Simultaneously the switching circuit actuates an interrogation blocking oscillator 2. The pulse from the blocking oscillator 2 triggers an unblanking generator 2 and the horizontal time base. This pulse is also applied to an interrogation circuit 2. The count of the counter 2, in the form of a series train of pulses, is applied to the vertical deflection plates of the tube from the output of the interrogation circuit via a mixer and an amplifier. The count is recorded on the screen and after the recording a resetting blocking oscillator 2 returns the counter 2 to its initial position. Now, a step time base generator deflects the ray by one step downwards. When the second pulse is received the switching circuit applies the pulses from the quartz oscillator to the counter 2, while the counter 1 is stopped. The interrogation blocking oscillator 1 is then

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triggered, the unblanking generator 1 is actuated and the horizontal time base is started. The indication of the counter 1 is recorded on the time base 1 and this represents the first interval between the pulses. After termination of the "recording" the resetting blocking oscillator 1 returns the counter 1 to its initial position. In this way it is possible to record as many time intervals as there are lines on the screen of the cathode-ray tube. The blocking oscillators for interrogation and resetting and the "resolving-time" circuit are based on negatively-biased blocking oscillators which are triggered through cathode-followers. The quartz-crystal oscillator is based on the usual circuit, the crystal being connected between the grid and the cathode. The forming stage is based on a circuit with a differentiating transformer. The unblanking generators are in the form of cathode-coupled uni-vibrators, while the horizontal time base employs an integrating circuit with anode-grid capacitance. A triggered blocking oscillator charged through a diode is employed as a stepping time base. The counters are based on standard binary cells and

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